

WIRELESS COMMUNICATION SYSTEM USING BLOCK
FILTERING AND FAST EQUALIZATION-DEMODULATION
AND METHOD OF OPERATION

ABSTRACT OF THE DISCLOSURE

5 There is disclosed a transceiver for use in a base station
(BS) of a fixed wireless network that communicates with a plurality
of subscriber transceivers via time division duplex (TDD) channels.
The BS transceiver comprises: 1) a receiver front-end for receiving
10 data burst transmissions from the plurality of subscriber
transceivers in an uplink portion of a TDD channel, wherein the
receiver front-end demodulates the received data burst
transmissions into a digital baseband signal in-phase (I) signal
and a digital baseband quadrature (Q) signal; 2) a first frequency
domain feedforward equalization filter for receiving the I signal
15 and performing a Fast Fourier Transform on a block of N symbols in
the I signal to produce a first symbol estimate sequence; 3) a
second frequency domain feedforward equalization filter for
receiving the Q signal and performing a Fast Fourier Transform on
a block of N symbols in the Q signal to produce a second symbol
20 estimate sequence; 4) an adder for receiving the first signal
estimate sequence on a first input and the second signal estimate
sequence on a second input and producing a combined symbol estimate
sequence; 5) a slicer for receiving and quantizing the combined

symbol estimate sequence to produce a sequence of decided symbols;
 and 6) a time domain feedback filter for receiving the sequence of
 decided symbols and generating a symbol correction sequence that is
 applied to a third input of the adder.

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